

architecture is used for a diverse set of airplane functions, including:

- flight-safety related control and navigation systems,
- airline business and administrative support, and
- passenger entertainment.

The airplane's control domain and airline information services domain of these networks perform functions required for the safe operation and maintenance of the airplane. Previously, these domains had very limited connectivity with other network sources. This network architecture creates a potential for unauthorized persons to access the aircraft control domain and airline information services domain from sources internal to the airplane, and presents security vulnerabilities related to the introduction of computer viruses and worms, user errors, and intentional sabotage of airplane electronic assets (networks, systems, and databases) critical to the safety and maintenance of the airplane.

The existing FAA regulations did not anticipate these networked airplane-system architectures. Furthermore, these regulations and the current guidance material do not address potential security vulnerabilities, which could be exploited by unauthorized access to airplane networks, data buses, and servers. Therefore, these special conditions ensure that the security (*i.e.*, confidentiality, integrity, and availability) of airplane systems will not be compromised by unauthorized hardwired or wireless electronic connections from within the airplane. These special conditions also require the applicant to provide appropriate instructions to the operator to maintain all electronic-system safeguards that have been implemented as part of the original network design so that this feature does not allow or reintroduce security threats.

These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

#### Applicability

As discussed above, these special conditions are applicable to the Bombardier Model CL-600-2B16 (604 variant) airplane. Should L2 Consulting Services, Inc., apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. A21EA to incorporate the same novel or unusual design feature, these special conditions would apply to that model as well.

#### Conclusion

This action affects only a certain novel or unusual design feature on the Bombardier Model CL-600-2B16 (604 variant) airplane. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of this feature on the airplane.

#### List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

#### Authority Citation

The authority citation for these special conditions is as follows:

**Authority:** 49 U.S.C. 106(f), 106(g), 40113, 44701, 44702, 44704.

#### The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for the Bombardier Model CL-600-2B16 (604 variant) airplane for airplane electronic-system internal access.

1. The applicant must ensure that the design provides isolation from, or airplane electronic-system security protection against, access by unauthorized sources internal to the airplane. The design must prevent inadvertent and malicious changes to, and all adverse impacts upon, airplane equipment, systems, networks, and other assets required for safe flight and operations.

2. The applicant must establish appropriate procedures to allow the operator to ensure that continued airworthiness of the airplane is maintained, including all post-type-certification modifications that may have an impact on the approved electronic-system security safeguards.

Issued in Kansas City, Missouri, on September 15, 2022.

**Patrick R. Mullen,**

*Manager, Technical Innovation Policy Branch  
Policy and Innovation Division, Aircraft  
Certification Service.*

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**BILLING CODE 4910-13-P**

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 25

[Docket No. FAA-2022-1197; Special Conditions No. 25-830-SC]

#### Special Conditions: L2 Consulting Services, Inc., Bombardier Model CL-600-2B16 (604 Variant) Airplane; Electronic System Security Protection From Unauthorized External Access

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Final special conditions; request for comments.

**SUMMARY:** These special conditions are issued for the Bombardier Model CL-600-2B16 (604 variant) airplane. This airplane, as modified by L2 Consulting Services, Inc., will have a novel or unusual design feature when compared to the state of technology envisioned in the airworthiness standards for airplanes. This design feature is associated with the installation of an electronic network system architecture that will allow increased connectivity to and access from external network sources, (*e.g.*, operator networks, wireless devices, internet connectivity, service provider satellite communications, electronic flight bags, etc.) to the airplane's previously isolated electronic assets (networks, systems, and databases). The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

**DATES:** This action is effective on L2 Consulting Services, Inc., on September 21, 2022. Send comments on or before November 7, 2022.

**ADDRESSES:** Send comments identified by Docket No. FAA-2022-1197 using any of the following methods:

- *Federal eRegulations Portal:* Go to <https://www.regulations.gov/> and follow the online instructions for sending your comments electronically.

- *Mail:* Send comments to Docket Operations, M-30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue SE, Room W12-140, West Building Ground Floor, Washington, DC 20590-0001.

- *Hand Delivery or Courier:* Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey

Avenue SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

• **Fax:** Fax comments to Docket Operations at 202–493–2251.

**Privacy:** Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in title 14, Code of Federal Regulations (14 CFR), § 11.35, the FAA will post all comments received without change to <https://www.regulations.gov/>, including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact received about these special conditions.

**Confidential Business Information:** Confidential Business Information (CBI) is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to these special conditions contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to these special conditions, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and the indicated comments will not be placed in the public docket of these special conditions. Send submissions containing CBI to Thuan T. Nguyen, Aircraft Information Systems, AIR–622, Technical Innovation Policy Branch, Policy and Innovation Division, Aircraft Certification Service, Federal Aviation Administration, 2200 South 216th Street, Des Moines, Washington 98198; telephone; 206–231–3365; email [Thuan.T.Nguyen@faa.gov](mailto:Thuan.T.Nguyen@faa.gov). Comments the FAA receives, which are not specifically designated as CBI, will be placed in the public docket for these special conditions.

**Docket:** Background documents or comments received may be read at <https://www.regulations.gov/> at any time. Follow the online instructions for accessing the docket or go to Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

**FOR FURTHER INFORMATION CONTACT:** Thuan T. Nguyen, Aircraft Information Systems, AIR–622, Technical Innovation Policy Branch, Policy and

Innovation Division, Aircraft Certification Service, Federal Aviation Administration, 2200 South 216th Street, Des Moines, Washington 98198; telephone; 206–231–3365; email [Thuan.T.Nguyen@faa.gov](mailto:Thuan.T.Nguyen@faa.gov).

**SUPPLEMENTARY INFORMATION:** The substance of these special conditions has been published in the **Federal Register** for public comment in several prior instances with no substantive comments received. Therefore, the FAA finds, pursuant to 14 CFR 11.38(b), that new comments are unlikely, and notice and comment prior to this publication are unnecessary.

#### Comments Invited

The FAA invites interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data.

The FAA will consider all comments received by the closing date for comments. The FAA may change these special conditions based on the comments received.

#### Background

On March 17th, 2022, L2 Consulting Services, Inc., applied for a supplemental type certificate for the installation of an electronic network system architecture that will allow increased connectivity to and access from external network sources, (e.g., operator networks, wireless devices, internet connectivity, service provider satellite communications, electronic flight bags, etc.) to the airplane’s previously isolated electronic assets (networks, systems, and databases). The Bombardier Model CL–600–2B16 (604 variant) airplane is a twin-engine, transport category airplane, executive-interior business jet with a maximum takeoff weight of 47,600 pounds (21,591 Kg) and a maximum seating capacity of twenty passengers and two crew members.

#### Type Certification Basis

Under the provisions of title 14, Code of Federal Regulations (14 CFR), § 21.101, L2 Consulting Services Inc., must show that the Bombardier Model CL–600–2B16 (604 variant) airplane, as changed, continues to meet the applicable provisions of the regulations listed in Type Certificate No. A21EA, or the applicable regulations in effect on the date of application for the change, except for earlier amendments as agreed upon by the FAA.

If the Administrator finds that the applicable airworthiness regulations (e.g., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Bombardier Model CL–600–2B16 (604 variant) airplane, because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the applicant apply for a supplemental type certificate to modify any other model included on the same type certificate to incorporate the same novel or unusual design feature, these special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Bombardier Model CL–600–2B16 (604 variant) airplane must comply with the fuel-vent and exhaust-emission requirements of 14 CFR part 34, and the noise-certification requirements of 14 CFR part 36.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type certification basis under § 21.101.

#### Novel or Unusual Design Feature

The Bombardier Model CL–600–2B16 (604 variant) airplane will incorporate a novel or unusual design feature, which is the installation of an electronic network system architecture that will allow increased connectivity to and access from external network sources, (e.g., operator networks, wireless devices, internet connectivity, service provider satellite communications, electronic flight bags, etc.) to the airplane’s previously isolated electronic assets (networks, systems, and databases).

#### Discussion

The Bombardier Model CL–600–2B16 (604 variant) airplane electronic system architecture and network configuration is novel or unusual for commercial transport airplanes because it may allow increased connectivity to and access from aircraft external network sources, airline operations, and maintenance networks, to the airplane’s control domain and airline information services domain. The airplane’s control domain and airline information services domain perform functions required for the safe operation and maintenance of the airplane. Previously, these domains had very limited connectivity with external network sources. This data network and design integration creates a potential for unauthorized persons to access the aircraft control domain and airline

information services domain, and presents security vulnerabilities related to the introduction of computer viruses and worms, user errors, and intentional sabotage of airplane electronic assets (networks, systems, and databases) critical to the safety and maintenance of the airplane.

The existing FAA regulations did not anticipate these networked airplane-system architectures. Furthermore, these regulations and the current guidance material do not address potential security vulnerabilities, which could be exploited by unauthorized access to airplane networks, databases, and servers. Therefore, these special conditions ensure that the security (*i.e.*, confidentiality, integrity, and availability) of airplane systems is not compromised by unauthorized wired or wireless electronic connections. This includes ensuring that the security of the airplane's systems is not compromised during maintenance of the airplane's electronic systems. These special conditions also require the applicant to provide appropriate instructions to the operator to maintain all electronic-system safeguards that have been implemented as part of the original network design so that this feature does not allow or introduce security threats.

These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

### Applicability

As discussed above, these special conditions are applicable to the Bombardier Model CL-600-2B16 (604 variant) airplane. Should L2 Consulting Services, Inc., apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. A21EA to incorporate the same novel or unusual design feature, these special conditions would apply to that model as well.

### Conclusion

This action affects only a certain novel or unusual design feature on the Bombardier Model CL-600-2B16 (604 variant) airplane. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of this feature on the airplane.

### List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

### Authority Citation

The authority citation for these special conditions is as follows:

**Authority:** 49 U.S.C. 106(f), 106(g), 40113, 44701, 44702, 44704.

### The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Bombardier Model CL-600-2B16 (604 variant) airplane, as modified by L2 Consulting Services, Inc., for airplane electronic-unauthorized external access.

1. The applicant must ensure airplane electronic system security protection from access by unauthorized sources external to the airplane, including those possibly caused by maintenance activity.

2. The applicant must ensure that electronic system security threats are identified and assessed, and that effective electronic system security protection strategies are implemented to protect the airplane from all adverse impacts on safety, functionality, and continued airworthiness.

3. The applicant must establish appropriate procedures to allow the operator to ensure that continued airworthiness of the airplane is maintained, including all post type certification modifications that may have an impact on the approved electronic system security safeguards.

Issued in Kansas City, Missouri, on September 15, 2022.

**Patrick R. Mullen,**

*Manager, Technical Innovation Policy Branch, Policy and Innovation Division, Aircraft Certification Service.*

[FR Doc. 2022-20393 Filed 9-20-22; 8:45 am]

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2022-0516; Project Identifier AD-2022-00262-E; Amendment 39-22157; AD 2022-18-06]

**RIN 2120-AA64**

### Airworthiness Directives; General Electric Company Turbofan Engines

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for all General Electric Company (GE) GE90-

110B1 and GE90-115B model turbofan engines and certain GE90-76B, GE90-85B, GE90-90B, and GE90-94B model turbofan engines. This AD was prompted by the detection of melt-related freckles in the forgings and billets, which may reduce the life of certain rotating compressor discharge pressure (CDP) high-pressure turbine (HPT) seals (rotating CDP seals), interstage HPT rotor seals, and HPT rotor stage 2 disks. This AD requires revising the airworthiness limitations section (ALS) of the applicable GE90-100 Engine Manual (EM) and the operator's existing approved maintenance program or inspection program, as applicable, to incorporate reduced life limits for these parts. This AD also requires the removal and replacement of certain interstage HPT rotor seals, identified by serial number (S/N), installed on GE90-76B, GE90-85B, GE90-90B, and GE90-94B model turbofan engines. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective October 26, 2022.

**ADDRESSES:** For service information identified in this final rule, contact General Electric Company, 1 Neumann Way, Cincinnati, OH 45215; phone: (513) 552-3272; email: [aviation.fleetsupport@ge.com](mailto:aviation.fleetsupport@ge.com); website: [www.ge.com](http://www.ge.com). You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

### Examining the AD Docket

You may examine the AD docket at [www.regulations.gov](http://www.regulations.gov) by searching for and locating Docket No. FAA-2022-0516; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Alexei Marqueen, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7178; email: [Alexei.T.Marqueen@faa.gov](mailto:Alexei.T.Marqueen@faa.gov).

### SUPPLEMENTARY INFORMATION: